



EXTERNAL VIBRATING ALARM

CLAIM FOR PRIORITY

5 This application is a national stage of PCT/DE00/00302,
published in the German language on August 24, 2000, and
which claims the benefit of priority /to German
Application No. DE 199 07 084.9, filed on February 19,
10 1999.

TECHNICAL FIELD OF THE INVENTION

The invention relates to a telecommunication terminal,
and in particular, to a mobile telephone having an
15 audible alarm device.

BACKGROUND OF THE INVENTION

In many situations, for example in the presence of a
large number of other people, audible call signaling or
20 the ringing of a user's mobile telephone is found to be a
nuisance. To prevent the nuisance of the mobile telephone
ringing and yet be able to be reached at the same time,
there are mobile telephones which can be switched over to
vibrating alarm, i.e. instead of the audible call
25 signaling the mobile telephone vibrates and thus signals
a call to the called party. However, this only works when
the user is carrying the mobile telephone on his body
such that it can be felt, or when the mobile telephone is
in the user's field of vision. As soon as the mobile
30 telephone is in the user's pocket or coat, for example,
he cannot detect the vibrating alarm.

Another problem of mobile telephones with a vibrating
alarm is that the vibration which the vibrating alarm
35 causes represents a loading on the electronic circuits of

the telephone in addition to the stresses already acting during use.

EP 0 467 071 A2 discloses a telecommunication terminal of the type referred to in the introduction in which a separate switch can be used to turn off the audible alarm device provided directly on the telecommunication terminal and to activate an external signaling apparatus at the same time. This means that, in particular situations in which audible call signaling is undesirable, for example during a meeting or in a restaurant, audible call signaling can be prevented and, instead, call signaling using the external signaling apparatus can be carried out, for example signaling in the form of a vibrating alarm. However, this telecommunication terminal has the problem that, if the external signaling apparatus fails, for example because the storage battery supplying it has discharged, or because the physical distance between the telecommunication terminal and the external signaling apparatus is too great for the transmission power provided, an incoming call on the user's telecommunication terminal is signaled to the user neither by the external signaling apparatus nor by the audible alarm device provided on the telecommunication terminal. It is therefore not possible to reach the user.

25 In addition, US 5,636,897 discloses the practice of designing an external signaling apparatus such that it outputs an audible or mechanical signal in the form of a beep or vibration signal if the user with the external signaling apparatus is at a greater distance from the telecommunication terminal than can be bridged by the transmission power provided for communication between external signaling apparatus and telecommunication terminal. With this prior art, the disadvantage arises that, whenever the user is at such a distance from the telecommunication terminal,

the external signaling apparatus outputs a corresponding alarm signal in order to indicate that call signaling is no longer guaranteed. The user may find this to be a nuisance.

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SUMMARY OF THE INVENTION

The invention relates to a telecommunication terminal, and in particular, to a mobile telephone having an audible alarm device for the purpose of audible call signaling originating from the telecommunication terminal and an external signaling apparatus connected to the telecommunication terminal by means of cordless communication for the purpose of cordless call signaling, the audible alarm device being able to be turned off by activating the external signaling apparatus.

The present invention provides a telecommunication terminal having an external signaling apparatus in which the user of the telecommunication terminal is not unnecessarily disturbed by the external signaling apparatus and which signals an incoming call to the user even if the external signaling apparatus is not operational.

In one embodiment of the invention, there is a telecommunication terminal in which the audible alarm device is automatically activated if the external signaling apparatus is not operational or the physical distance between the telecommunication terminal and the external signaling apparatus exceeds a particular value.

The signaling apparatus, which requires just a radio receiver for short distances, a vibrating device and a small power supply unit, can have compact dimensions and low weight, allowing the signaling apparatus to be
5 carried comfortably on the body. The user is therefore always able to detect the vibrating alarm. Another advantage of the invention is that the telecommunication terminal itself is not subjected to any vibration, and the loading on the sensitive mobile
10 telephone electronics is thus reduced. In addition, the user's exposure to radio-frequency radiation is reduced, since only the signaling apparatus and not the terminal itself need be carried on the body. The cordless communication between terminal or mobile
15 telephone and signaling apparatus extends only over distances of a few meters and therefore requires very low transmission powers, whose radiation burden is harmless.

20 BRIEF DESCRIPTION OF THE DRAWINGS

The invention is explained in detail below using a preferred exemplary embodiment with reference to the drawings, in which:

25 Figure 1 shows an inventive mobile telephone with an external signaling apparatus.

DETAILED DESCRIPTION OF THE INVENTION

The telecommunication terminal or mobile telephone 1
30 has an input keypad, a display, an antenna 2, audible call signaling etc. In addition, a low-power transmission device is provided for cordless communication with the external silent signaling apparatus 3, which receives signaling signals sent by
35 the telephone 1 by means of an antenna 4. Furthermore,

the signaling apparatus 3 has a vibrating device for producing vibration or a device for producing a visual or odorous call alarm. Preferably, the